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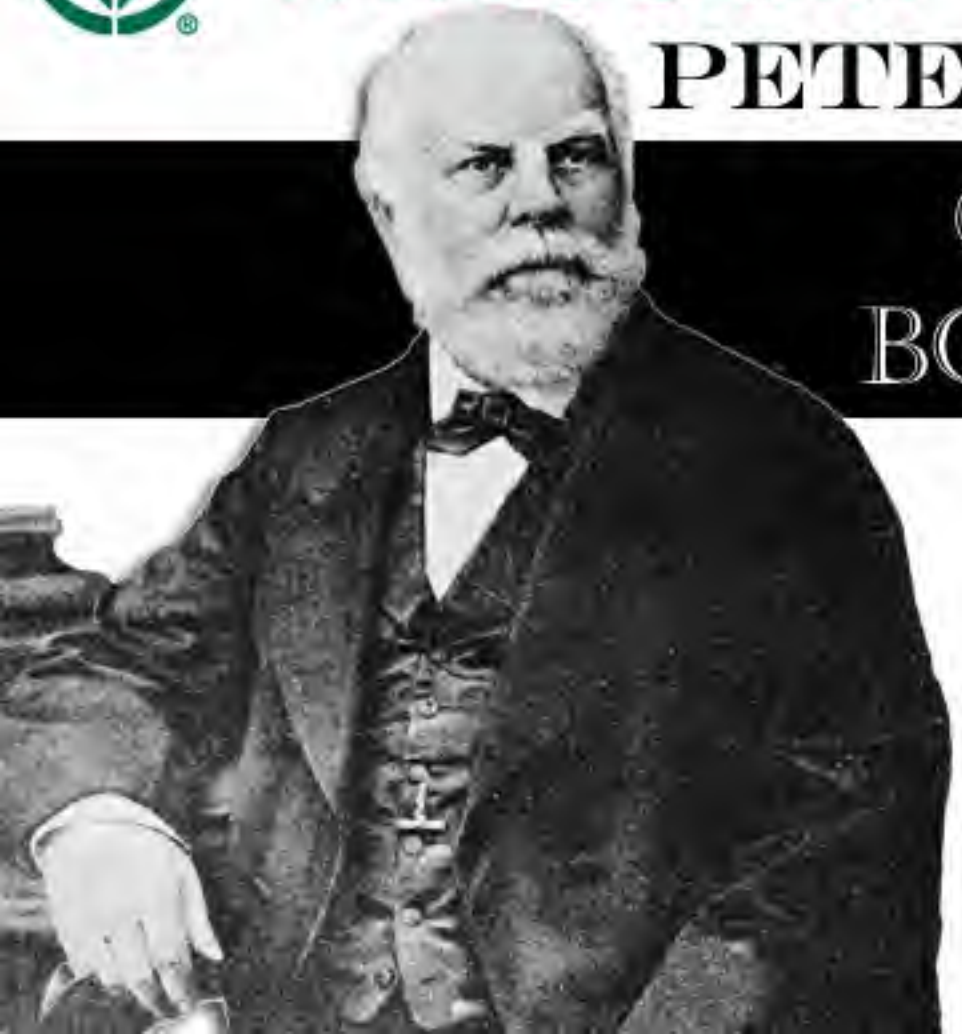
George Engelmann Botanical Notebooks



Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Coniferae Cambridge Oct 4 1883

Sachs' Botany

The female ~~inflorescences~~ cones of Coniferae are single flowers as well as the male is called a catkin. This is stated in so many words, but is not further explained but see below

A peculiarity which distinguishes the pollen grain of Coniferae from that of Angiosperms lies in the rupture and final stripping off of the cuticularized extine by the swelling of its intine

Taxodineae has two erect ovules like Thuja [Dr. Prod. has the same, also Bentham & Hooker

Sachs p. 452 Engl. ed. In Abietineae the well known cones are the female flowers (or rather fruits) — the ovuliferous scales appear as axial structures in the axil of bracts which spring from the axis of the cone. The seminiferous scale itself arises at first as a protuberance of the base of the bract, and is therefore not axillary — the seminiferous scale must therefore be considered as a greatly developed placenta growing out of a carpel, which may small or even abortive. —

In a foot note Braun's and others views are ventilated, also in the context p. 453

Van Tieghem in a note to the French translation says that the vessel bundles of the scale come from the main axis and not from the bundles of the bract, as it ought to be if the ~~bract~~ scale was an appendage to the bract; the carpellary scale is therefore the only (!!) leaf organ of a suppressed axillary branch. This distinguishes (amongst other characters) Coniferae from Cycadaceae, where the bract itself is the carpellary scale.

10354

Cambridge Oct 7 1883

Coniferous wood (this part is wanting in the french translation)

Sachs Botany. The substance of the wood of the stem is formed from the descending bundles which, at first isolated, soon coalesce into a closed ring by portions of cambium which cross the medullary rays. The primary wood or xylem, termed the medullary sheath, which consists of the xylem portions of the descending arms of the common bundles, contains (in all Gymnosperms as well as in Dicotyledons) long narrow vessels with annular or spiral thickening bands, while further outward occur scalariform or reticulately thickened vessels.

The secondary wood produced from the Cambium ring after the cessation of the length-growth consists in Gymnosperms of long tracheides grown into one another in a prosenchymatous manner with a few large bordered pits. This secondary wood is distinguished from that of the Dicotyledons that it is composed only of such prosenchymatous cells (wood parenchyma not or scarcely formed) and the wide dotted vessels composed of short cells are wanting which penetrate the dense narrow celled masses of the wood of Dicotyledons.

The bordered pits of Coniferae are usually developed only on the wall which faces the medullary rays, in one or two rows, but in Araucaria densely crowded.

The medullary rays in Coniferae are very narrow, often only one cell; the cells are strongly lignified and their lateral faces in contact with the adjoining tracheids are provided with closed dots.

The Phloem of the fibrovascular bundles is similar to that of Dicotyledons.

Sap conducting later cellular passages are widely distributed; carrying gum in Cycadeae and resin in Coniferae and oil of turpentine — Here they occur in the pith, in the wood, and in the primary and secondary cortex and in the leaves. In Taxeae the resin canals are wanting.

Van Tieghem says:
1. no canals in root or stem: Taxeae
2. none in root, but in cortical parenchyma of stem: Cryptomeria, Taxodium, Sequoia, Dacrydium, Torreya, Tsuga, Cunninghamia
3. none in root, canals in cortical parenchyma and pith of stem: Salisburia
4. canal in root and in parenchyma of stem: Cedrus, Abies, Pseudolarix
5. canals in the fibrovascular bundles of stem and root and in cortical parenchyma of stem: Pinus, Larix, Picea, Pseudotsuga
6. canals in the liber of the fibr. vasc. bundles of stem and root and of cortical parenchyma of stem: Araucaria, Widdringtonia, Thuja, Cupressus, Biota.

10355

Conifers — Cambridge Oct 4 1883

Sachs' Botany — Structure

Fibro vascular bundles similar to those of Dicotyledons

fig 27

c Transverse section through stomes of Pinus Pinaster × 800

xx 2 guard cells of the stomes, p. its pore, v. its entrance

C. Canna or air cavity — c cuticularized layers of epidermis

i "inner thickening layers of the cells beneath the epidermis"

[What I call strengthening cells, and what Schwendener seems to call mechanical cells]

g chlorophyll filled parenchyma cells

"Hypodermis consists of layers or bundles of thick walled sclerenchyma-cells, sometimes even of bastlike fibres"

Pollen tube of Conifers penetrates a short distance into the micropyle and thickens (widens) In those with annual fruit fertilization it develops further after a few weeks; in those with biennial maturation, they rest till the following June, when the further development takes place and the thin end termination of the tube penetrates through the nucleus to the embryosac, and attaches itself firmly to the cells of the neck of the archegonium.

(What we are in the habit of calling bract is here called carpel scale, and our carpel-scale is here placentary excrescence)

10356

Pinus Lin. Endl. Parlat.

Pinus. Abies & Larix Tourn

Pinus, Abies Lin Gen Juss Rich.

Pinus Picea Abies Larix Cedrus Link Linn. 15.

Pinus Abies Cedrus Larix Spach

Pinus Tsuga Abies Picea Larix Cedrus Pinus Camiè

Pinus Abies Cedrus Larix Picea Pseudolarix Gord

Pinus Larix Pseudolarix Cedrus Abies Henk & Hochst

Pinus Keteleria Tsuga Pseudotsuga Abies
Picea Larix Pseudolarix Cedrus
Carrière ed 2

Conifers 9 genera of Pinus Conif ed 2 1867

Pinus	Parlatore	sp. 1–66.	p. 378–406
Abies	"	sp. 88–105	418–427
Picea	"	sp. 78–87	413–418
Larix	"	sp. 69–76	p. 409–412
Cedrus	"	sp. 67–68	p. 407–408
Tsuga	"	106–110	428–430
Pseudotsuga	"	111 Douglasii	p. 430
Pseudolarix	"	sp. 77.	p. 412
Keteleria	"	112 Fortunei	p. 430

1868 Parlatore unites Pseudotsuga & Keteleria with Tsuga, and divides

Pinus
1. Pinus p. 378
2. Sapinus 407
1 Cedrus
2 Larix
3. Pseudolarix
4 Picea
5 Abies
6 Tsuga

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American Central Insurance Company,

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John A. Lowell & Co. Boston

St. Louis, Dec 29 1874

Dr. Engelmann.

Will you please let me have your bill

Respectly

Max Disch

Palmer
Sept Gray

Dec 1883

sent to Sargent almost all my sketches

of Pinus

Abies

Picea

Tsuga

Pseudotsuga

Sciadopitys

to be returned

(Kept numbers of tables)

zu essen. Leider kann ich heute nicht kommen, hoffe aber ihr wendet uns doch das Vergnügen auch bei uns zu sehen, auch auf meinen schriftlichen Wunsch nicht verzichten. Mit herzlichen Grüßen

Eugenie Rombergen

Donnerstag den 30sten Mai. 83.

Cambridge Oct 14 '76

Sanio, Anatomie, Pinus silvestris, Pringsheim Archiv 9 vol 1873 p. 115 – Autumnal and vernal wood (see Mohl in Bot Zeit. 1862 p 228

Sanio finds other laws than Mohl. M says that in vigorous growth the harder autumnal wood is not as much increased than the softer vernal wood. But Sanio finds that the difference in both kinds of wood is based on the height of the section above the base. The autumnal wood harder grows with the height, and the vernal softer wood increases. In a 130 year old trunk the Autumn. : Spring wood

one – 4 meters above	Base	=	1 : 2½
" " 6 – 8 "	– –		1 : 3
– – 10 – 12 –	– –		1 : 4
– – 14 – 20	– –		1 : 5
– – 24 – 26			1 : 7
– – 27.			1 : 10

Therefore wood near the base stronger and heavier than higher up, makes better firewood – In other species the proportion of aut. & vern wood is different 1 : 2, 1 : 1½ and even 1 : 1

Trust. 1808, 209; Gray, Man. ed. 2. 358.
H. concolor, Muhl. Cat.; Torr. Fl.
N. Y. t. 99. (H. pubescens in letterpress).
H. juglandifolia, Willd. Spec. iv. 1104;
H. Carolinianum, Willd.? Pursh, Fl. i. 9,
not Lam. H. expansa, Willd. ~~Lam.~~
Baum. 150. H. Berlandieriana,
DC. Prodr. viii. 278, var. with leaflets
(mostly 5) cuneate at base. (The fruits
of H. viridis & H. Americana seem to
have been interchanged in the plates
of Mich. f. Sylv.) — along streams,
Canada West and Dakotah to Florida,
Texas, and Arizona. (Mex.? Cuba.)

H. trifoliata Buckley, l. c.,
with 3-winged samara.

Berlandiana c. var.

Linne Mast. cal. 4-phyllus
(Abies m. cal. - gemma

2 lateral, Keeled
then 3rd ~~dorsal~~ ventral (towards axis of inflorescence
4th dorsal towards bract

10360

Jan 1875.

Abies Link Linn. XV. 525 (1841)
Pinus Don ex. Lamb

Tsuga Endl. 146 Pinus Carrier Conif ed 1 p. 185 (1855)

Pseudotsuga Carr. Conif ed 2 p. 256 1867

Hesperotsuga Engl. Bot Jahrb 1888.

Picea Link l.c. 516 (1841)
Abies Don ex Lamb

Pinus Lin Gen. ed 1. n 731
A aeritor. plus

10361